

REMARKS

Claims 1-5, 8-26 are currently pending in this application. By this Amendment, claim 17 has been amended. Claim 17 was amended to correct a typographical error. The amended claim set is provided herewith.

Applicant notes the withdrawal of the rejection under 35 U.S.C. § 112.

§ 103 Rejection of the Claims

Claims 1-5, 9-19, 22, and 26 have been rejected under 35 U.S.C. § 103 by Matsuda, U.S. Patent No. 6,586,104, in view of Iryo, U.S. Patent No. 5,789,789,476. Applicant respectfully traverses this rejection.

The Office Action asserts that the difference between Matsuda and the subject matter of the rejected claims is the specific surface modifiers of the nanoparticles set forth in the rejected claims. The Office Action continues on to nevertheless assert that Iryo teaches the use of silane compounds, and asserts that the motivation for the modification of the nanoparticles is to improve stability/dispersity of the nanoparticles in the coating composition. Applicant respectfully asserts that this is not a valid motivation in light of the disclosure of Matsuda.

It is preferred by Matsuda that the oxide particles have "a large amount of OH group on their surface in order to enhance the applicability and the adhesion thereof to substrate" (Matsuda, column 3, lines 48-50). The substrates that are utilized in Matsuda are glass plates (Matsuda, column 10, lines 1-5). Therefore, the surfaces of the particles that are preferred in Matsuda have to be able to adhere to a glass substrate, i.e., adhered to SiO₂. In order to improve the dispersability of a nanoparticle solution, the particles have to not agglomerate, i.e., not adhere together. Therefore, if the surface of the nanoparticles were modified in order to improve dispersability, i.e. force the particles to not adhere to each other, they would also not be able to adhere to SiO₂, one example of an oxide particle given in Matsuda. Therefore, the proposed modification of Matsuda would render it unsatisfactory for its intended purpose. According to MPEP § 2143.01(V), there can be no motivation to combine a reference when the proposed modification would render the prior art unsatisfactory for its intended purpose.

Therefore, it is respectfully asserted that a *prima facie* case of obviousness has not been established with respect to claims 1-5, 9-19, 22, and 26, because a proper motivation to modify has not been provided.

Applicant also does not concede the correctness of the Office Action's statements with regard to viscosity. Specifically, Applicant does not necessarily agree with the Office Action that Matsuda's composition is substantially the same as that of Applicant's, and that therefore Matsuda's compositions and that of Applicant's should have the same viscosities.

With respect to claim 14 and 15, Applicant respectfully asserts that neither Matsuda nor Iryo disclose polyethyloxazoline; or any particular amounts of an adhesion promoter and that therefore, a *prima facie* case of obviousness has not been established with respect to these claims because the references don't disclose or suggest all of the elements of the claims.

With respect to claims 16-18, Applicant cannot find in the previous Office Action where methyltrialkoxysilane was mentioned, and is unclear if it is being asserted that this compound is disclosed in Matsuda or Iryo. If the Office Action is referring to Iryo, Applicant notes that the silanes in Iryo were used as the matrix (Iryo, column 7, line 25 --- column 8, line 12), and as such cannot be considered an additive as that term is utilized in claims 16-18. Specifically, in the Applicant's specification, it is noted that tetraalkoxysilanes and alkyltrialkoxysilanes can be added to modify the physical properties of the cured coating, and may be used in conjunction with or in place of non-reactive solvent in the composition (US 2005/0069718, paragraph 0059, lines 1-5). Therefore, Applicant respectfully asserts that the references fail to disclose or suggest all of the elements of claims 16-18.

With respect to claims 19 and 22, Applicant asserts that neither Matsuda nor Iryo disclose or suggest the use of flexibilizers, and therefore the references fail to disclose or suggest all of the elements of this claim as well.

Withdrawal of the rejection of claims 1-5, 9-19, 22, and 26 is respectfully requested in light of the comments offered above.

Claims 20 and 21 have been rejected under 35 U.S.C. § 103 by Matsuda, U.S. Patent No. 6,586,104, in view of Chandross, U.S. Patent No. 6,251,486. Applicant respectfully traverses this rejection.

The Office Action asserts that the difference between Matsuda and claims 20 and 21 is the particular flexibilizers that are utilized. The Office Action further states that Chandross teaches the use of dialkyltrialkoxysilanes, and asserts that the motivation to use the compounds

of Chandross would be to afford a material with enhanced properties because the materials can function as plasticizer segments. Applicant disagrees with this construction of Chandross.

Chandross discloses a ladder siloxane polymer that includes a modified methylsilsesquioxane composition that includes dimethyl and phenyl pendant groups. The dialkyldialkoxysilanes that are used in Chandross are part of the bulk polymer, and are not functioning as an additive. Therefore, one of skill in the art would not have been motivated to utilize the Chandross compounds as additives because Chandross would lead one of skill in the art to believe that they function as bulk polymers, not additives. Also, there is nothing in Chandross that indicates that the compounds could function as flexibilizers. Furthermore, there would have been no reasonable expectation of success to think that any desirable properties could be obtained by their use because the compounds were being changed from being in the bulk polymer to being an additive.

Based on the above comments, Applicant respectfully requests that the rejection of claims 20 and 21 over Matsuda in view of Chandross be withdrawn.

Claims 1-5, 8, 10-15, 18-19, and 22-26 have been rejected under 35 U.S.C. § 103 by Matsuda, U.S. Patent No. 6,586,104, in view of Atkinson, U.S. Patent No. 4,909,852. Applicant respectfully traverses this rejection.

Applicant reiterates the comments offered above with respect to Matsuda and the lack of motivation to modify it by changing the surface modifying particle to one that improves dispersability. Applicant therefore respectfully submits that there is no motivation to combine Matsuda with Atkinson.

With respect to claims 23 and 24, Applicant notes that the Office Action asserts that Matsuda in view of Atkinson's composition contains organic acids. Although Applicant does not concede the correctness of this statement, Applicant asserts that Atkinson utilizes these compounds as surface modifying particles, not additives. A compound would function differently as an additive than it would on the surface of a nanoparticle. Specifically, in the Applicant's specification, it is noted that the organic acids serve to catalyze the condensation reaction (US 2005/0069718, paragraph 0062, lines 1-2). A compound that was attached to the surface of a nanoparticle would not necessarily be able to carry out this function. Applicant also asserts that Atkinson does not disclose methoxyethoxyacetic acid, hexanoic acid, or mixtures

thereof, as is recited in claims 24. With respect to claim 25, Applicant notes that Atkinson does not provide any amounts and certainly not those recited in claim 25.

Based on the above comments, Applicant respectfully requests that the rejection of claims 1-5, 8, 10-15, 18-19, and 22-26 over Matsuda in view of Atkinson be withdrawn.

Claims 16-18 have been rejected under 35 U.S.C. § 103 by Matsuda, U.S. Patent No. 6,586,104, in view of Rotenberg, U.S. Patent No. 4,173,490. Applicant respectfully traverses this rejection.

The Office Action asserts that the difference between Matsuda and claims 16-18 is the specific additives that are utilized. The Office Action further asserts that Rotenberg teaches that a coating composition comprising a tetraalkoxysilane and alkyltrialkoxysilane is useful for providing abrasion coatings for plastics, and therefore there would have been motivation for using a composition comprising these components to increase the abrasion resistance of the plastics.

Rotenberg discloses a coating composition that includes orthosilicate monomers and methytrimethoxysilane monomers to form a highly-cross-linked polysiloxane network polymer. The methytrimethoxysilane that is used in Rotenberg is part of the bulk polymer, and is not functioning as an additive. Therefore, one of skill in the art would not have been motivated to utilize the Rotenberg compounds as additives because Rotenberg would lead one of skill in the art to believe that they function as bulk polymers, not additives. Also, there is nothing in Rotenberg that indicates that the compounds could function as additives as they are described in Applicant's specification. Specifically, in the Applicant's specification, it is noted that tetraalkoxysilanes and alkyltrialkoxysilanes can be added to modify the physical properties of the cured coating, and may be used in conjunction with or in place of non-reactive solvent in the composition (US 2005/0069718, paragraph 0059, lines 1-5). Furthermore, there would have been no reasonable expectation of success to think that any desirable properties would be obtained because the compounds were being changed from the bulk polymer to an additive.


Based on the above comments, Applicant respectfully requests that the rejection of claims 16-18 over Matsuda in view of Rotenberg be withdrawn.

In view of the foregoing amendments, Applicants respectfully request reconsideration and allowance of the claims as all rejections have been overcome. Early notice of allowability is kindly requested.

Please grant any extension of time, if necessary for entry of this paper, and charge any fee due for such extension or any other fee required in connection with this paper to Deposit Account No. 13-3723.

Respectfully submitted,

29 Nov 2006
Date

By: 
Robert J. Pechman, Reg. No.: 45,002
Telephone No.: 651-737-0631

Office of Intellectual Property Counsel
3M Innovative Properties Company
Facsimile No.: 651-736-3833